

**Executive Summary**

**Project Title and Applicant Name**

Artificial Bat (Chiroptera) Roosting Habitat Project  
David T. Wyatt

**Project Description and Primary Biological/Ecological Objectives**

This project will construct, install, and monitor a total of 130 artificial bat roost structures within the non-profit, County, State, and Federal Lands in the Stone Lakes National Wildlife Refuge (Refuge) and the Cosumnes River Preserve (Preserve) in Sacramento County, California. Primary objectives are to restore bat populations to the Refuge and Preserve sites, reduce insect numbers (particular pest species) by restoring a primary predator of nocturnal flying insects, and reduce the need for and application of pesticides and oils that degrade water quality and adversely impact prey numbers for fisheries and wildlife.

**Approach/Tasks/Schedule**

A total of 130 artificial bat roosts will be constructed during the fall and winter of 1997/98 by utilizing two proven designs provided by Bat Conservation International, a leading conservation organization dedicated to the protection of bats. Eighty Bat Conservation International (style) Nursery Roosts and 50 Post Bat House (U.S. Forest Service style) will be constructed, installed, and monitored the Stone Lakes National Wildlife Refuge and the Cosumnes River Preserve in Sacramento County, California.

Prior to placement of the structures, an acoustical survey will be undertaken of various sites within the two areas to determine locations of current bat use. The data compiled from the surveys (to be conducted during spring 1998) will be used to select locations to place the bat roosts.

**Justification for Project and Funding by CALFED**

The lack of undisturbed bat roosting habitat is one of the principle reasons for reduction in the populations of bats in California. Of the 24 bat species in California, 13 of these are identified as species of concern by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game. Bats are the primary predator for nocturnal flying insects, therefore, provide a service to humans by reducing noxious pest species and benefiting the agricultural community. One way to increase many of these species' numbers and to restore the predator/prey balance is to provide artificial structures for colonization by bats.

All of the bat species in California are insectivorous and consume large amounts of insects nightly. Restoration of bat populations will reduce the reliance on pesticides to control insect numbers. In particular, the Refuge and the Preserve have extensive areas of restored and natural wetlands. These provide excellent habitat for pest species of insects identified as possibly pathogen-bearing by various health departments (e.g. mosquitoes).

If the numbers of these species increase, control methods are implemented often necessitating the spraying of pesticides, oils, or bacterial controls into the wetlands and waterways of the Refuge and Preserve. This material makes its way into the Delta and may have an adverse affect on the fisheries and habitats of the Delta region including the priority species and priority habitats.

#### Budget Costs and Third Party Impacts

This project has a proposed budget of \$29,035.77. This budget includes all materials costs and student assistant personnel and was developed in consultation with various materials suppliers including Home Depot, Simmen Lumber, and Sacramento Redwood Company. The acoustical surveying equipment bids were provided by the Manufacturer which is the only supplier for this equipment. In addition, the price quotation is based on current overseas monetary exchange rates (as of July 21, 1997).

This project will not result in adverse impacts to anticipated or potential third parties. The various organizations or entities in ownership of the properties to be used by this project are supportive of the project and have provided letters of support attached as Figures 1-6.

#### Applicant Qualifications

The principle investigator for this project is David T. Wyatt. He is an adjunct faculty member of the Biology Department at American River College teaching courses in General Biology, Natural History, Introductory Entomology, Principles of Ecology, Wildlife Biology, and Forest Entomology. In addition, he is a District Biologist for the California Department of Transportation since 1990 and has also worked as a biologist for the California Department of Fish and Game and the State Water Resources Control Board. Mr. Wyatt has worked with bats since 1994 and has experience with bats in California and Arizona.

#### Monitoring and Data Evaluation

Monitoring of the project will be conducted by the principle investigator, volunteers, and student assistants from California State University Sacramento and American River College. Technical reports will be prepared annually and financial reports will be prepared quarterly by the principle investigator documenting occupancy, colonization rates, species composition, and temperature. The reports and data will be provided to the North American Bat House Research Project.

#### Local Support/Compatibility with CALFED Objectives

This project has received the support of CSU Sacramento, American River College, Stone Lakes National Wildlife Refuge, Cosumnes River Preserve, County of Sacramento, and Bat Conservation International. It is compatible with the restoration and habitat recovery goals of CALFED by providing increased biodiversity and enhanced habitat quality and water quality.

**Title Page****Project Title**

Artificial Bat (Chiroptera) Roosting Habitat Project

**Name of Applicant/Principle Investigator**

David T. Wyatt

Adjunct Faculty

American River College

Biology Department

4700 College Oak Drive

Sacramento, CA 95841

Phone: (916) 324-6634

Fax: (916) 323-7669

Email: &lt;dwyatt@concentric.net&gt;

and

District Biologist

California Dept. of Transportation

District 3

P.O. Box 942874, MS-41

Sacramento, CA 94274-0001

Phone: (916) 324-6634

Fax: (916) 323-7669

Email: &lt;dwyatt@trmx3.dot.ca.gov&gt;

**Type of Organization and Tax Status**

American River College, Los Rios Community College District - Educational

California Department of Transportation - State Agency

**Tax Identification Number**

American River College (Los Rios Community College District)- 1-941576340-A2

California Department of Transportation - 680274794

**Technical and Financial Contact Person**

David T. Wyatt (same information as above)

**Participants/Collaborators in Implementation**

David T. Wyatt, American River College and California Department of Transportation

Dr. Gene R. Trapp, California State University Sacramento

Dr. Joan Brenchley-Jackson, American River College

Thomas E. Harvey, U.S. Fish and Wildlife Service

Roger Jones, County of Sacramento

Bryan Young, County of Sacramento

Dr. Richard Reiner, The Nature Conservancy Cosumnes River Preserve

**RFP Project Group Type(s)**

Construction.

Other Services.

## **Project Description**

### *Project Description and Approach*

This project will construct, install, and monitor 80 Bat Conservation International (style) Nursery Roosts and 50 Post Bat House (U.S. Forest Service style) within the non-profit, County, State, and Federal Lands in the Stone Lakes National Wildlife Refuge (Refuge) and the Cosumnes River Preserve (Preserve) in Sacramento County, California. In addition, this project will conduct acoustic sampling using ultrasonic detectors to ascertain areas currently being utilized by bats to target placement of the structures.

The lack of suitable roosting sites for bats is a major limiting factor in their distribution. This project will provide roosting opportunities for colonies of bats within wildland and restored habitats in the Refuge and Preserve. Bat Conservation International (BCI) is the acknowledged leader in bat conservation, therefore, specifications and blueprints provided by BCI were used to develop this proposal. A total of 80 BCI Nursery Roosts will be constructed and established at 40 locations within the project area. These will provide not only roosting areas but have also been shown to be effective in providing habitat for maternity colonies of bats. Bats also utilize the exfoliating bark of large trees for roosting habitat. Unfortunately, much of this type of habitat has been lost. Therefore, a total of 50 Post Bat Houses, which mimic the spaces of exfoliating bark and was developed by the U.S. Forest Service, will be constructed and placed in the project area. All of these will be constructed, installed, and monitored by volunteers and student assistants.

### *Location/Geographic Boundaries of Project*

This project will be located within the geographical boundaries of the Stone Lakes National Wildlife Refuge and the Cosumnes River Preserve in Sacramento County, California. The Refuge is located primarily on the west side of Interstate 5 south of the town of Freeport and between Interstate 5 and the Sacramento River. Several small sections of the Refuge are present to the east of Interstate 5, most notably the nearly 3,000 acres encompassing the Sacramento County's Regional Sanitation District. Within this District, 550 acres are undergoing restoration activities to enhance and create wildlife habitat.

The Cosumnes River Preserve is located primarily east of Franklin Boulevard along the Cosumnes River. The recent acquisition of the Valensin Ranch property has nearly doubled the size of the Preserve to nearly 10,000 acres, extending to the east of Highway 99. Numerous projects to restore wetlands and riparian habitats have occurred or are ongoing on the Preserve.

### *Expected Benefits*

One of the primary benefits of this project is to help control insect numbers associated with natural and restored wetland habitats. In particular, pathogen-carrying species such as mosquitoes are of intense concern to public health officials. As a result of these concerns, actions to control numbers of these species are utilized including application of pesticides, oils, or bacterial controls to wetlands. Pesticides and oils degrade water quality and are often nonselective in their targets, resulting in numerous beneficial and neutral aquatic and terrestrial

insects being killed. Additionally, the reduction or even elimination of predatory species results in episodic outbreak situations of the pest species due to the loss of the predator/prey population cycles. While use of bacterial agents such as *Baccillus thuringiensis* are certainly preferable to application of pesticides or oils, these agents also have an overall detrimental effect on wildlife and fisheries resources. *Baccillus thuringiensis* is an effective agent against mosquitoes, however, it also impacts other members of the Order Diptera (flies), including non-offensive species. This reduction in numbers results in lower availability of prey for predatory aquatic species.

The large amount of wetland and riparian restoration having taken place within the project area has resulted in a potentially favorable situation for many insect species, particularly species such as mosquitoes. In the absence of biological control agents, chemical or bacterial control agents must be implemented. In addition, many of the private lands in the project area are in agricultural production. Agricultural pest species are also consumed by bats, thereby reducing the need for extensive pesticide application and providing a method for biological control of pest insects.

#### *Background and Biological Justification*

As outlined in the above "Expected Benefits" section, the proposed project area has substantial acreages of wetland and riparian habitat. The waterways servicing this area includes the Sacramento River, the Cosumnes River, the Mokelumne River, Morrison Creek, Badger Creek, Snodgrass Slough, Stone Lakes, and Beach Lake. These types of areas provide excellent habitat for bat species. However, prior land conversion activities have reduced much of the available roosting habitat for bats.

In California, over one-half (13 species) of the 24 species of bats occurring in this state are identified as species of concern or as sensitive species by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game. Loss of habitat and the slow reproductive rate (most have only one young annually) have been the primary causes of the decline in bat populations throughout the United States. Many of these species utilize crevices (man-made or natural) for roosting habitat. Much of the available roosting habitat has been lost due to the loss of large diameter, old-growth riparian trees and the replacement of old wooden trestle bridges. Adjacent to the Cosumnes River Preserve, an example of dangers faced by bats include a significant colony of bats (20,000+) within a structure scheduled to be demolished. Although replacement mitigation is proposed for this maternity colony, the presence of additional non-mitigation roosting alternatives on the Preserve could help to compensate for the loss of the structure.

The re-establishment of bat colonies within these areas provides a long term solution to help alleviate insect concerns for both public health considerations as well as in the agricultural community. Research supported or reported by Bat Conservation International indicates that a colony of 1,000 bats will consume nearly 25 pounds of insects nightly. A study reported by the University of California Cooperative Extension cites that "a single little brown bat can catch 600 mosquitoes in an hour and that a typical colony of 150 big brown bats in the midwest consumes

38,000 cucumber beetles, 16,000 June bugs, 19,000 stink bugs, and 50,000 leafhoppers as well as thousands of moths" during the course of a year.

As the primary natural predator of nocturnal insects, bats help to alleviate human dependence on potentially harmful chemical pesticides. By reducing the pesticide load in the environment, particularly in wetlands and the associated drainages, overall water quality of surface flows into the Delta region is improved. Not only does increased water quality benefit the natural habitats in the area, it also would benefit the numerous priority species identified in the Category III submittal packet (Chinook Salmon runs, Delta Smelt, Longfin Smelt, Splittail, Steelhead Trout, Green Sturgeon).

#### *Proposed Scope of Work*

This project will construct, install, and monitor 80 Bat Conservation International (style) Nursery Roosts and 50 Post Bat House (U.S. Forest Service style) within the Stone Lakes National Wildlife Refuge and the Cosumnes River Preserve (Exhibits 1 and 2). Wetland and riparian areas are to be targeted for the placement of the structures. Acoustical surveying of these areas will be conducted to determine presence/absence of bats throughout the Refuge and Preserve. The results of the surveying will determine locations for placement of the bat roosts. Use of the GPS units will ensure accuracy in plotting locations of the surveys and bat roosts for monitoring purposes.

All aspects of this project are proposed for CALFED funding. The initial stage of designing has been completed. Once funding is acquired, materials will be purchased for construction of the bat houses and student assistants will be hired to conduct the work. Acoustical sampling will occur during Spring 1998 when the bats return to the area from their winter migration. Areas identified as good locations for bat roosts will have the BCI and Post style houses installed by the students and the principle investigator. Follow-up monitoring will be conducted on all of the installed roosts at a minimum of twice each year to determine occupancy and species composition (where possible). Use of the ANABAT II acoustical detector will be necessary in some instances to determine presence of bats in some of the structures due to the structures not affording a clear view of the bats.

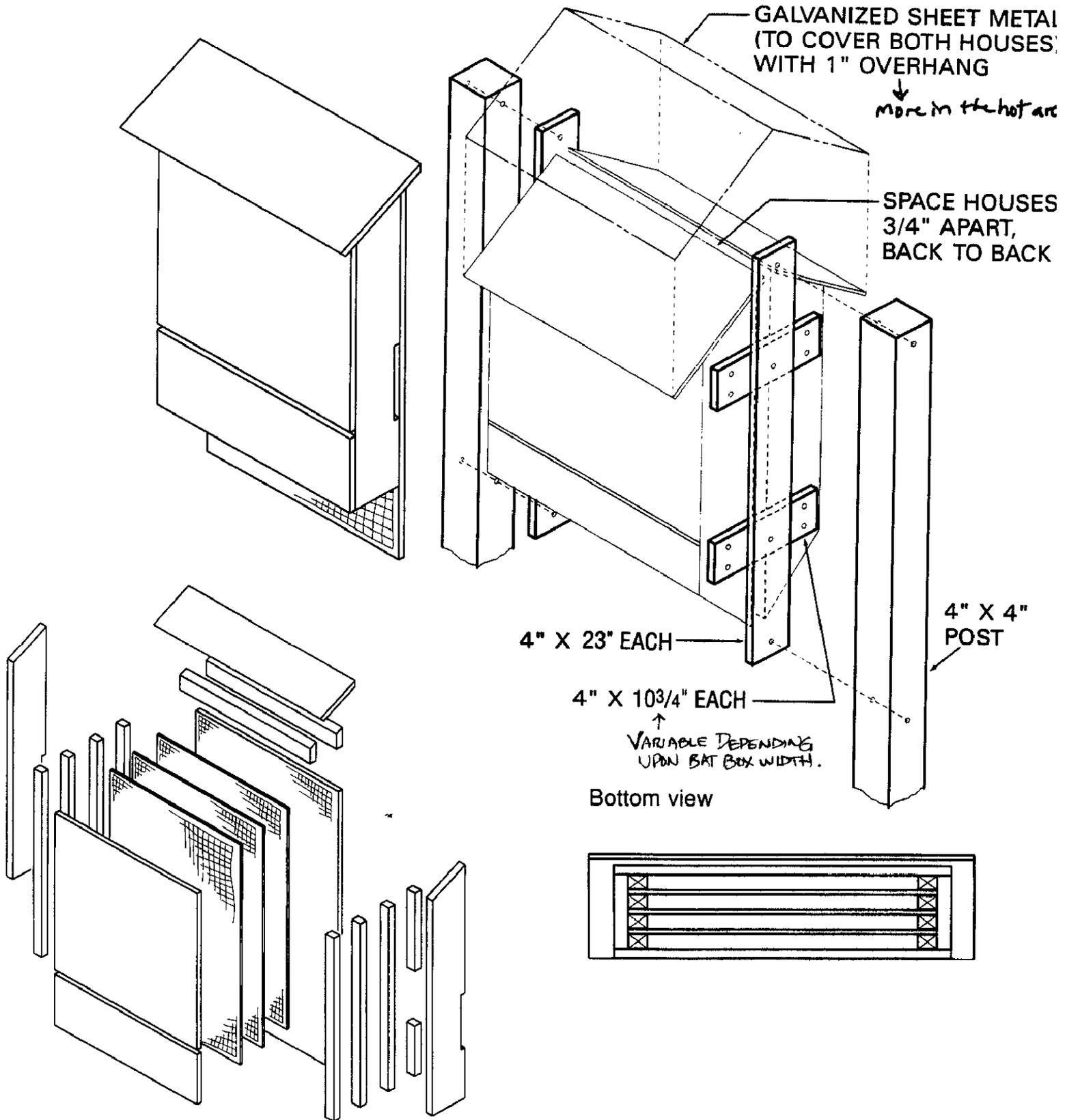
Technical reports (monitoring reports) will be prepared on an annual basis. Financial reports will also be provided on a quarterly basis until completion of the project.

#### *Monitoring and Data Evaluation*

This project will be registered in the North American Bat House Research Project (Bat Conservation International, Austin Texas) and will be providing annual reports to biologists at Bat Conservation International. Pre-installation acoustical surveys will ascertain patterns of use by bats of the various habitats in the area. The post-installation surveys of the bat roosts will determine occupancy and habitat selection of the bats. In addition, colonization rates, species composition, and temperature will be gathered to monitor the progress of the bat houses. Students from CSU Sacramento and American River College will assist in the monitoring. It is the responsibility of the principle investigator to prepared annual monitoring reports.

# Exhibit 1

## NURSERY HOUSE

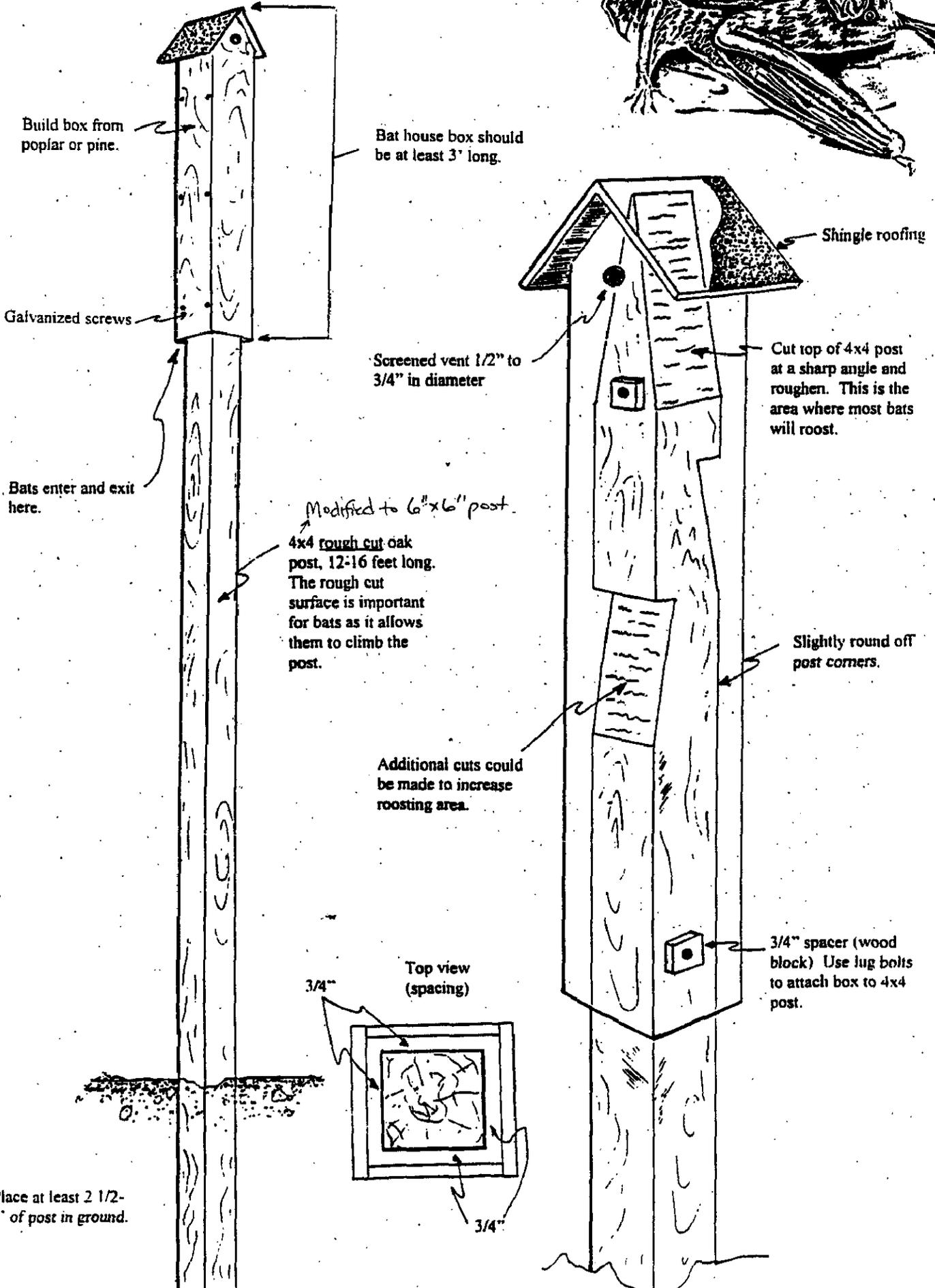


# POST BAT HOUSE DESIGN 7/96

DANIEL BOONE NATIONAL FOREST

J. MACGREGOR/D. DOURSON

Exhibit 2



*Implementability*

The leadership of Bat Conservation International in preserving and enhancing bat populations has resulted in the ability to construct artificial structures sensitive to the needs of bats. By taking advantage of their expertise and established designs and protocols, this project can take advantage of the highly successful results already experienced by BCI. The simple designs and construction needs of the BCI and Forest Service designs allows for no specialized skills to produce the structures. In addition, the principle investigator has constructed bat houses in the past.

This project complies with all applicable laws and requires no permits to construct and install the structures. Local support for the project has been significant. Figures 1, 2, 3, 4, 5, and 6 provide letters of support for this project. These letters of support were provided by representatives of the California State University Sacramento, American River College, Bat Conservation International, U.S. Fish and Wildlife Service, Cosumnes River Preserve, and the County of Sacramento.

**Costs and Schedule to Implement Proposed Project**

*Budget Costs*

Cost Breakdown Table						
Project Task	Direct Labor Hrs	Direct Salary & Benefits	Overhead (Admin) @ 7.5%	Material & Acquisition Costs	Miscellan. Costs	Total Cost
Acoustic Surveys	300	\$3000.00	\$225.00	\$2930.77	-	\$6155.77
BCI Nursery Roost Construction	200	\$2000.00	\$150.00	\$5592.48	-	\$7742.48
BCI Nursery Roost Installation	175	\$1750.00	\$131.25	\$51.60	-	\$1932.85
BCI Nursery Roost Monitoring	250	\$2500.00	\$187.50	-	-	\$2687.50
Post Bat House Construction	100	\$1000.00	\$75.00	\$4264.76	-	\$5339.76
Post Bat House Installation	100	\$1000.00	\$75.00	\$32.25	-	\$1107.25
Post Bat House Monitoring	250	\$2500.00	\$187.50	-	-	\$2687.50
<b>Summary Totals</b>	<b>1375</b>	<b>\$13750.00</b>	<b>\$1031.25</b>	<b>\$12871.86</b>	<b>-</b>	<b>\$27653.11</b>

Summary of Project Costs including Contingency		
Item	Number	Total Cost
Acoustic Surveys	-	\$ 6155.77
BCI Nursery Roost	80	\$ 12362.83
Post Bat House	40	\$ 9134.51
Subtotals	-	\$ 27653.11
Contingency Percentage (5%)	-	\$ 1382.66
<b>Total Including Contingency</b>	<b>-</b>	<b>\$ 29035.77</b>

*Schedule Milestones*

Project Schedule Milestones			
Task	Start	Complete	Payment Milestone
BCI & Post House Constr.	Jan 1998	Sept 1998	Payment for Students & Materials.
Acoustic Surveys	April 1998	August 1998	Payment for Students & Materials.
BCI & Post House Install.	May 1998	Nov 1998	Payment for Students & Materials.
Monitoring	May 1998	Nov 2000	Payment for Students.

### *Third Party Impacts*

This project will result in no adverse impacts to anticipated or potential third parties. This project is located on established wildlife habitat and will not result in disturbances to humans. Beneficial impacts are expected for residents of the area, agricultural activities, and downstream water uses and habitat values due to the reduction of pest species of insects and the concurrent reduced need for pesticide applications.

### **Applicant Qualifications**

The principle investigator and project manager for this proposed project is David T. Wyatt. All activities will be coordinated through David Wyatt. He has worked with bats in California and Arizona since 1994 (including construction of bat houses) and is currently a District Biologist for the California Department of Transportation and is the project manager for the Beach Lake Mitigation Bank. He has worked for the Department since 1990 and prior to Caltrans, worked for the California Department of Fish and Game and the State Water Resources Control Board. He has a B.S. and M.S. degree in Conservation Biology from the California State University Sacramento and is an adjunct faculty member of the Biology Department at American River College. Since January 1994, Mr. Wyatt has taught at American River College courses including Principles of Ecology, Wildlife Biology, Forest Entomology, Forest Recreation, General Biology, Introduction to Entomology, and Natural History of California.

Dr. Gene R. Trapp from the Biology Department at California State University Sacramento has expressed an interest in this project for conservation biology purposes and for student participation. Dr. Joan Brenchley-Jackson from the Biology Department at American River College has also expressed an interest in participating in the project for research purposes and student participation in wildlife and environmental quality issues. Thomas Harvey is the refuge manager for the Stone Lakes National Wildlife Refuge (U.S. Fish and Wildlife Service) and supports the project for the pest control benefits and to promote biological diversity on the Refuge. Roger Jones and Bryan Young are natural resource specialists on the County of Sacramento's habitat restoration efforts within the Stone Lakes National Wildlife Refuge and similarly support the project for biodiversity and pest control purposes. Dr. Richard Reiner is the area ecologist for The Nature Conservancy and represents the Cosumnes River Preserve.

Potential conflicts of interest for Mr. Wyatt are resolved by Mr. Wyatt receiving no financial compensation for this project. Activities conducted on the Caltrans parcel at Beach Lake and surrounding land parcels having a bearing on the management of the Beach Lake Mitigation Bank will occur while in the employment of Caltrans. All other research, construction, installation, and monitoring activities will occur as an adjunct faculty member of the Biology Department at American River College.

**Compliance with Standard Terms and Conditions**

The standard terms and conditions identified in Attachment D of the RFP are agreeable to and can be complied with. This project is identified as project categories Construction and Other Services. The project principle investigator is affiliated with Public Entities (American River College and Caltrans), therefore, the Construction and Services Standard Clauses and Proposal Requirements do not require submittal with the Proposal. Instead, submittal/compliance is required before or at signing of the final contract.

FIGURES 1-6

**CALIFORNIA STATE UNIVERSITY. SACRAMENTO**

6000 J STREET, SACRAMENTO, CALIFORNIA 95819

Department of Biological Sciences

21 July 1997

David Wyatt, Adjunct Faculty  
American River College  
Biology Department  
4700 College Oak Drive  
Sacramento, CA 95841

Dear David:

In regard to our recent conversations about establishing bat houses in the Delta region, I think that this is an excellent idea. Bats themselves need more help from people these days, since their populations are down, and some species are endangered. This is unfortunate for mankind because bats help control agricultural insect pests and annoying and disease-carrying mosquitoes. Hence, placing bat houses in Delta locations will be a benefit to environmental quality by reducing dependence on the use of pesticides in the region. I would say the more bat houses the better for both people and bats.

There is great benefit in establishing collaborative arrangements between universities, community colleges, and the state and federal agencies. Students can get educational benefits via volunteer work, internships, and part-time jobs. I have established a growing e-mail list for students which tells them about jobs in bio-conservation that I hear about. Whenever you need students to help with the bat house project, just let me know, and I will put out the announcement on this list and I'm sure we will get a response from a number of bio-conservation students.

Also, if I can help in any other way to support this project just let me know, since I think it is very worthwhile.

Sincerely,

A handwritten signature in black ink that reads 'Gene R. Trapp'.

Gene R. Trapp, PhD  
Professor of Biological Sciences



10 July 1997

Mr. David Wyatt, District Biologist  
 Caltrans District 3  
 P.O. Box 942874, ms-41  
 Sacramento CA 94274-0001

Re: Artificial Bat Structure Project, Sacramento River  
 Delta Region

Dear Dave:

Your proposal for the artificial bat structure project in the Sacramento River Delta area is exciting for a number of reasons, and as a systems ecologist and conservation biologist, I am convinced that this project is not only feasible but tremendously important to our regional ecological sustainability and economic well-being. The network of scientists and educators that you have developed for this project will also enhance its effectiveness, particularly with the well-known conservation achievements of the Cosumnes River Preserve, Stone Lakes National Wildlife Refuge, and Valensin Ranch partnerships. I, as a faculty member of American River College's Biology Department, hope that we, too, can join this alliance and contribute to your project's success.

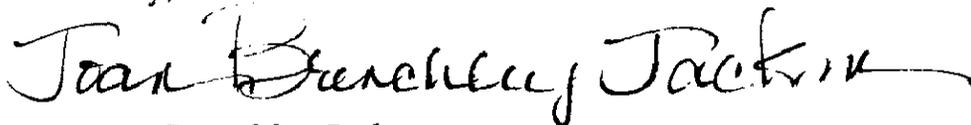
As you know well, bats are a critical component of our local ecosystem, especially their well-documented value in controlling insects in adjacent agricultural lands. By increasing bat populations, pesticide use (and thus cost) can be reduced, which in turn significantly reduces the impact of pesticides on water quality in the Sacramento River Delta region - a substantial accomplishment in itself. Despite their importance, bat numbers continue to decline precipitously due directly to the loss of roosting sites, and indirectly, to the public's misconceptions of bats and their importance. Your project to restore roosting sites and monitor bat populations will contribute greatly to improving our understanding of bat conservation, which will further be enhanced by involving educators and students.

Here at American River College, we are currently trying to develop new ways to serve our local community and to improve educational opportunities for our students. Participating in your project would help us meet these two objectives. In the biology department, we recognize that hands-on field experience is one of the most powerful pedagogical tools available to us. Field work allows students to become scientists actively engaged in the discovery process. The Artificial Bat Structure project would allow us to incorporate real field experience into the curriculum of a number of biology courses (for example: Biology 10: Natural History, Biology 8: Natural History of Insects, Biology 18: Conservation Biology), to provide vocational internship and independent study programs for our more gifted students, and to entice students to think about the importance of habitat restoration and bat conservation. The close proximity of your project field site to our campus (approximately 30 minutes) will make the work even more relevant to students.

From your perspective, I would imagine that having a large pool of volunteers trained in basic biological and ecological principles available for restoration and monitoring efforts would be especially important. Of course we both know as conservation biologists that a more scientifically literate and experienced public will lead to greater conservation successes in the future.

To conclude, your Artificial Bat Structure Project will not only further our knowledge and ability to increase bat populations through roosting site restoration, but it will also help enhance endangered riparian ecosystems, reduce pesticide applications, increase regional water quality, and educationally, increase biology student success and improve the public's understanding of local conservation efforts. Indeed, a project that can combine all these traits is worthy of support. I look forward to participating in its success.

Sincerely,



Dr. Joan Brenchley-Jackson  
Biology Department, American River College  
4700 College Oak Drive  
Sacramento CA 95841

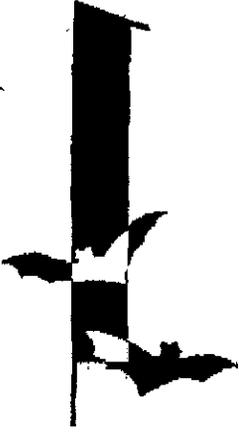
(916) 484-8243

Fig. 3

Bat Conservation International, Inc.

# North American Bat House Research Project

Post Office Box 162603 • Austin, Texas 78716 • 512-327-9721 • FAX 512-327-9724



24 July 1997

David Wyatt  
Adjunct Faculty  
American River College  
Biology Department  
4700 College Oak Drive  
Sacramento, CA 95841

Dear David,

Thank you for your interest in bats and bat houses! BCI is very interested in your bat house project. Testing of this magnitude would provide us with valuable information on use of bat houses. The nursery style bat houses that you plan to test have proven to be highly successful, and preliminary results indicate that the Post Bat House design is also a good design. Bat house success is highest in areas near permanent sources of water. The habitats you described will be excellent sites for bat houses.

The data generated from your experiments will be a great asset to our North American Bat House Research Project. We greatly appreciate the information you will provide to help us learn more about the roosting needs of bats. I will be glad to make you a complimentary member of our project next year.

Thanks again for your efforts to conserve bats. Please let me know if I can be of further assistance.

Sincerely,

Mark Kiser  
NABHRP Coordinator  
mkiser@batcon.org



Bat Conservation International is supported by tax-deductible contributions used for public education, research, and conservation of threatened and endangered bats.  
Printed on recycled paper.

TOTAL P.01

Figure 4



IN REPLY REFER TO:

# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Stone Lakes National Wildlife Refuge  
2233 Watt Avenue, Suite 375  
Sacramento, California 95825  
(916) 979-2085

July 23, 1997

David Wyatt, Adjunct Faculty  
American River College  
Biology Department  
4700 College Oak Drive  
Sacramento, CA 95841

Dear Mr. Wyatt,

We were recently made aware of your efforts in submitting a proposal to the CALFED Bay-Delta Program for establishing bat boxes and structures both on and in the vicinity of the Stone Lakes National Wildlife Refuge.

Whereas bat populations have been steadily declining in the state and nearly one half of the bat species now found in California are Species of Concern, the Service supports your efforts to establish bat boxes and structures on the refuge. Stone Lakes is an ideal location for reestablishing bat populations. We are now in the process of restoring wetlands on the property and the bats could act as natural controls of pest species such as mosquitos, reducing the reliance on pesticides. The reduction in pesticide use would benefit the surrounding communities as well the refuge.

Thank you for your efforts on behalf of the restoration of the Stone Lakes Basin. Please contact us if you need further information.

Sincerely,

Thomas E. Harvey  
Refuge Manager

Fig. 5

# Cosumnes River Preserve

13501 Franklin Boulevard  
Galt, California 95632  
(916) 684-2816 Fax: (916) 683-1702 crp@ns.net

**Cooperators**

- Bureau of Land Management
- Decks Unlimited, Inc.
- California Department of Fish and Game
- California Department of Water Resources
- California Wildlife Conservation Board
- Sacramento County Department of Parks and Recreation
- The Nature Conservancy

July 23, 1997

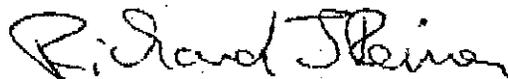
Dave Wyatt  
Adjunct faculty American River College  
Biology Department  
4700 College Oak Drive  
Sacramento, CA 95841

Dave,

The Nature Conservancy would like to voice our support for your proposal to the Category III program. The proposal titled Artificial Bat Roosting Habitat Project supports the Cosumnes River Preserve goals. We are particularly interested in finding chemical free alternatives to mosquito control in this region of the Delta.

The results of this project could be useful for other landowners concerned about the expense and impacts on the environment (including CALFED priority species) of chemical applications in the Delta. The cost of this project appears modest when compared to the potential benefits of a good non-chemical control system. Please seriously consider this proposal.

Sincerely,



Richard J. Reiner, Ph.D.  
Area Ecologist  
The Nature Conservancy

*"Preserve and protect California valley oak forests and central valley wetlands."*



1-12-6

# COUNTY OF SACRAMENTO

## WATER QUALITY DIVISION

**ROBERT F. SHANKS, Chief**

COLLECTION SYSTEM, S. WALTON  
ENGINEERING SECTION, J. WONG  
TREATMENT PLANT, W.H. KIDO

## DEPARTMENT OF PUBLIC WORKS

DOUGLAS M. FRALEIGH, Director  
W.H. HARADA, Deputy Director  
F.I. HODGKINS, Deputy Director  
TERRY T. TICE, Deputy Director

To whom it may concern:

This letter is in support of a proposal offered by Dave Wyatt to construct and supply artificial bat housing. For the past seven years, I have been involved with the management of a 3500 acre refuge in south Sacramento County where we have created or enhanced over 300 acres of permanent and seasonal wetlands. During this time I have watched our bat population diminish to the point that I have not seen a bat on our property in the last 4 years. I feel strongly that bats are an important and integral component of our ecosystems, especially where wetlands are concerned. Presently, the potential for adult mosquito population control offered by nocturnal insectivores (bats) is being at least partially fulfilled by chemical pesticide application. I would support any effort at increasing the natural control of these potentially dangerous insect pests and the resulting decrease in reliance in chemical application, especially in sensitive wetland habitats.

Sincerely,

Roger Jones  
Bryan Young  
Natural Resource Specialists  
(916) 875-9174

